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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,236	10/28/2003	Thomas Lloyd Credelle	CLVT02913-1P US	5279
90323	7590	05/25/2012	EXAMINER	
Innovation Counsel LLP 21771 Stevens Creek Blvd Ste. 200A Cupertino, CA 95014			MOON, SEOKYUN	
			ART UNIT	PAPER NUMBER
			2629	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,236	CREDELLE, THOMAS LLOYD	
	Examiner	Art Unit	
	SEOKYUN MOON	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2012.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-5,8-21,25,26 and 28-30 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 13,14,25 and 31 is/are allowed.
- 7) ☒ Claim(s) 1,5,8,12,15-21,26,28-30 is/are rejected.
- 8) ☒ Claim(s) 2-4 and 9-11 is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 16 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Remarks

A phone call was made to the Applicant's representative, Gideon Gimlan, on May 7, 2012 to propose an examiner's amendment to the claims. Another phone call was made to the representative on May 14, 2012 to check whether the Applicant agrees to enter the amendment or not, however the Applicant's representative stated that the Applicant could not be reached. Accordingly, claims are rejected in this Office action.

Examiner respectfully submits that even though the examiner's proposed amendment discussed on May 7, 2012 appeared to overcome all of the cited prior arts at the time of the examination, a further search and consideration will be made in the next Office action to determine the patentability of the subject matter corresponding to the proposed amendment.

In the last Office action, the rejections of the claims based on the cited prior arts were made based on the Examiner's own interpretation of the claims (*See* the rejection of claims under 35 U.S.C. 112, first paragraph made on Non-Final Rejection mailed August 5, 2011, p. 7). The Applicant's arguments regarding the rejection under 35 U.S.C. 112, and the Examiner's own interpretation are persuasive. Accordingly, this Office action is made non-final.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 15-21, 26, and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to **claim 15**, the claim discloses having a dot inversion polarity scheme, which includes a violation in a row direction. However, once there is a violation in a dot inversion polarity scheme, the driving scheme is no longer a dot inversion polarity scheme.

Appropriate correction/explanation is required.

As to **claims 16-19 and 29**, the claims are rejected as being dependent upon the base claim rejected under 35 U.S.C. 112, first paragraph.

As to **claim 20**, the claim discloses having a dot inversion polarity scheme, which includes a violation in a row direction. However, once there is a violation in a dot inversion polarity scheme, the driving scheme is no longer a dot inversion polarity scheme.

Appropriate correction/explanation is required.

As to **claims 21 and 26**, the claims are rejected as being dependent upon the base claim rejected under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 8, 15, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Publication No. 0 322 106 A2 by Gibbons (herein after, Gibbons).

As to **claim 1**, Gibbons teaches a liquid crystal display [col. 1, ll. 51-52] comprising:

a panel [fig. 2] substantially tessellated by a subpixel repeating group comprising differently colored subpixels and having an even number of subpixels including a first colored subpixel [fig. 2, “10”, note that Examiner construed each of pixels of Gibbons configured to generate one color as the claimed subpixel and a combination of pixels configured to generate any color as a pixel.], a second colored subpixel [fig. 2, “8”], a third colored subpixel [fig. 2, “10”] and a fourth colored subpixel [fig. 2, “6”], which first through fourth colored subpixels are consecutively arranged in a row wherein the first, second and fourth subpixels have different colors from each other while the third colored subpixel has a same color as that of the first colored subpixel, said subpixel repeating group defining a first column of same colored subpixels [fig. 2, the column of “10”], where the color of said same colored subpixels of the first column is same as the first colored subpixel; and

a driver circuit [fig. 1 and abs., the means for sending image data to the “*display device 2*”] sending to the panel, image signals representing image data.

Gibbons does not expressly teach that said driver circuit uses a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, at one or more of the columns of first colored subpixels such that potential image degradation introduced by the periodic dot inversion polarity scheme is localized on said one or more of the columns of first colored subpixels.

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However, Examiner takes Official Notice that it is well known in the art to use a two dot inversion which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, to drive subpixels of a liquid crystal display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquid crystal display of Gibbons to be driven with a two dot inversion, which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, in order to reduce crosstalk.

Gibbons as modified above teaches that potential image degradation [Gibbons, fig. 2, the image gradation caused by driving two vertically adjacent green subpixels with same polarity] introduced by the periodic dot inversion polarity scheme is localized on said one or more of the columns of first colored subpixels.

As to **claim 8**, Gibbons teaches a method of providing image data to a liquid crystal display [col. 1, ll. 51-52] having a panel [fig. 2] that is substantially tessellated by a primitive subpixel repeating group comprising differently colored subpixels disposed to define rows and columns within the primitive subpixel repeating group where each row has an even number of subpixels including a first colored subpixel [fig. 2, “10”, note that Examiner construed each of pixels of Gibbons configured to generate one color as the claimed subpixel and a combination of pixels configured to generate any color as a pixel.], a second colored subpixel [fig. 2, “8”], a third colored subpixel [fig. 2, “10”] and a fourth colored subpixel [fig. 2, “6”], which first through fourth colored subpixels are consecutively arranged in a row of the primitive subpixel repeating group, wherein the first, second and fourth subpixels have different colors from each other while the third colored subpixel has a same color as that of the first colored subpixel, said

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subpixel repeating group further defining as one of its columns, a first column of same colored subpixels where the color of said same colored subpixels of the first column is same as the first colored subpixel, the method comprising:

providing driver signals to the subpixels in the panel.

Gibbons does not teach that said providing of the driver signals uses a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, at one or more of the columns of first colored subpixels such that potential image degradation introduced by the periodic dot inversion polarity scheme is localized on the column of first colored subpixels.

However, Examiner takes Official Notice that it is well known in the art to use a two dot inversion which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, to drive subpixels of a liquid crystal display.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Gibbons to drive a display with a two dot inversion, which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, in order to reduce crosstalk.

Gibbons as modified above teaches that potential image degradation [Gibbons, fig. 2, the image gradation caused by driving two vertically adjacent green subpixels with same polarity] introduced by the periodic dot inversion polarity scheme is localized on said one or more of the columns of first colored subpixels.

As to **claim 15**, Gibbons teaches a liquid crystal display [col. 1, ll. 51-52] comprising:

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a display panel [fig. 2] including a plurality of subpixels arranged to define a subpixel repeating group having rows and columns; each row of said subpixel repeating group having an even number of subpixels including a first colored subpixel [fig. 2, “10”, note that Examiner construed each of pixels of Gibbons configured to generate one color as the claimed subpixel and a combination of pixels configured to generate any color as a pixel.], a second colored subpixel [fig. 2, “8”], a third colored subpixel [fig. 2, “10”] and a fourth colored subpixel [fig. 2, “6”], which first through fourth colored subpixels are consecutively arranged in a row of the primitive subpixel repeating group, wherein the first, second and fourth subpixels have different colors from each other, and where the primitive subpixel repeating group defines as one of its columns, a column of dark colored subpixels [fig. 1, green colored subpixels],

means [fig. 1 and abs., the means for sending image data to the “*display device 2*”] for providing driver signals to the subpixels in the display panel to send image data.

Gibbons does not expressly teach that said means sends image data having a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, such that potential image degradation introduced by the periodic dot inversion polarity scheme localized on the column of dark colored subpixels.

However, Examiner takes Official Notice that it is well known in the art to use a two dot inversion which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, such that potential image degradation introduced by the periodic dot inversion polarity scheme localized on the column of colored subpixels.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquid crystal display of Gibbons to be driven with a two dot inversion,

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which is a substantially periodic dot inversion polarity scheme, which includes a violation in a row direction, in order to reduce crosstalk.

Gibbons as modified above teaches that potential image degradation [Gibbons, fig. 2, the image gradation caused by driving two vertically adjacent green subpixels with same polarity] introduced by the periodic dot inversion polarity scheme is localized on the column of dark colored subpixels.

As to **claim 28**, Gibbons as modified above teaches that said driver circuit sends signals indicating image data having a polarity scheme to the panel such that at least two adjacent subpixels in a row have the same polarity (note that the two dot inversion polarity scheme drives two adjacent pixels/subpixels in a row with the same polarity.).

As to **claim 29**, Gibbons as modified above teaches that the said use of a driver circuit comprises providing a two-phase driver for driving the display, wherein phases of the driver circuit are selected such that parasitic effects placed upon imagery of any of the subpixels driven by said phased signals are placed substantially upon subpixels disposed in columns positioned at display sections driven by said driver circuit (as discussed with respect to the rejection of claim 1, two adjacent green subpixels arranged vertically are driven with the same polarity signals. Thus, parasitic effects are localized on the green subpixels.).

Gibbons as modified above does not teach that the two-phase driver is comprised of a plurality of two-phase driver chips for driving respective bounded sections of the display.

However, Examiner takes Official Notice that it is well known in the art to form a driver of a liquid crystal display in a form of a plurality of driver chips and to use each of the driver chips to drive each portion of the display panel.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the two-phase driver of Gibbons as modified above to include a plurality of driver chips and to use each of the driver chips to drive each portion of the display panel, in order to provide uniform image data.

As to **claim 30**, Gibbons as modified above teaches that the image degradation is caused by same-color subpixels of same polarity occurring successively one after the next (note that two dot inversion polarity scheme drivers two adjacent rows with the same polarity. Thus, the two adjacent green subpixels arranged in a column are driven with the same polarity, and thus crosstalk occurs.).

Claims 5, 12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbons in view of U.S. Patent No. 5,841,411 by Francis.

As to **claim 5**, Gibbons as modified above does not teach that a correction signal is applied to one or more of the subpixels at which the violation of the periodic dot inversion polarity scheme occurs and the applied a correction signal counters a loss of luminance caused by the violation.

However, Francis teaches the concept of applying a correction signal to one or more subpixels at which a periodic dot inversion polarity scheme does not occur to compensate a loss of the luminance caused by not having the periodic dot inversion [col. 2, ll. 29-56] (Note that the vertical cross-talk can be prevented by the periodic dot inversion.).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquid crystal display of Gibbons as modified above to apply a correction signal to

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one or more subpixels at which the periodic dot inversion polarity scheme does not occur to compensate a loss of the luminance caused by not having the periodic dot inversion, as taught by Francis, in order to reduce the luminance loss caused by the vertical cross-talk.

As to **claim 12**, Gibbons as modified above does not teach that a correction signal is provided to one or more of the subpixels in the group of subpixels at which the violation of the periodic dot inversion polarity scheme occurs, wherein the provided a correction signal counter a loss of luminance caused by the violation.

However, Francis teaches the concept of applying a correction signal to one or more subpixels at which a periodic dot inversion polarity scheme does not occur to compensate a loss of the luminance caused by not having the periodic dot inversion [col. 2, ll. 29-56] (Note that the vertical cross-talk can be prevented by the periodic dot inversion.).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Gibbons as modified above to include the step of applying a correction signal to one or more subpixels at which the periodic dot inversion polarity scheme does not occur to compensate a loss of the luminance caused by not having the periodic dot inversion, as taught by Francis, in order to reduce the luminance loss caused by the vertical cross-talk.

As to **claim 19**, Gibbons does not teach that the liquid crystal display comprises means for providing correction signals to one or more subpixels in the group of subpixels.

However, Francis teaches the concept of including a means for providing correction signals to one or more subpixels in a group of subpixels [col. 2, ll. 29-56] (Note that the vertical cross-talk can be prevented by the periodic dot inversion.).

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the liquid crystal display of Gibbons as modified above to include a means for providing correction signals to one or more subpixels in a group of subpixels, as taught by Francis, in order to reduce the luminance loss caused by the vertical cross-talk.

Allowable Subject Matter

Claims 13, 14, 25, and 31 are allowed.

Claims 2-4 and 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEOKYUN MOON whose telephone number is (571)272-5552. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571)272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

May 21, 2012
/Seokyun Moon/
Primary Examiner, Art Unit 2629